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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/654,943   | 09/01/2000  | Seung Kuk Ahn        | 8733-294-00         | 7898             |
| 30827  | 7590        | 02/03/2004           | EXAMINER            |                  |
| MCKENNA LONG & ALDRIDGE LLP<br>1900 K STREET, NW<br>WASHINGTON, DC 20006 |             |                      | KOVALICK, VINCENT E |                  |
|  |             | ART UNIT             | PAPER NUMBER        | 2673             |
| DATE MAILED: 02/03/2004  |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                    |                |
|------------------------------|--------------------|----------------|
| <b>Office Action Summary</b> | Application No.    | Applicant(s)   |
|                              | 09/654,943         | AWN, SEUNG KUK |
|                              | Examiner           | Art Unit       |
|                              | Vincent E Kovalick | 2673           |

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 17 November 2003.

2a) This action is FINAL.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-6 and 10-17 is/are rejected.

7) Claim(s) 7-9 and 18-20 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

1) Notice of References Cited (PTO-892)                            4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)                    5) Notice of Informal Patent Application (PTO-152)  
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.                    6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is in response to Applicant's Amendment dated November 17, 2003 in response to USPTO Office Action dated May 16, 2003.

Authorization to correct the minor informalities in Figures 5A, 5B, 7A, 7B, 8A and 8B as submitted is granted.

The addition of new claims 10-20 is noted and said claims have been entered in the record.

Regarding Applicant's remarks relating to the objection to claims 1 and 5 based on the lack of an antecedent basis for the claimed subject matter, though sufficient to overcome the objection to the specification by pointing out the multiple pages identified to support the said claims, said specification support clearly fall short of a clear and concise antecedent.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5, 11 and 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirakata (USP 6,496,172).

Relative to claims 1, 5, 11 and 16, Hirakata **teaches** a liquid crystal display device, active matrix type liquid crystal display device, and method of driving the same (col. 5, lines 41-67; col. 6, lines 1-67 and col. 7, lines 1-16); Hirakata further **teaches** an apparatus and method for driving a liquid crystal panel having pixels arranged at each intersection between gate lines and data lines in a matrix type in an inversion system, comprising: first signal supplying means for setting at least one pixel block each of which includes at least two data lines within the liquid crystal panel to apply data signals having the same polarity to the adjacent pixels in a gate line direction within the pixel block; and second signal supplying means for applying data signals having a polarity contrary to the adjacent pixels at the left and right sides thereof to the pixels within the other pixel areas except for the pixel block area (col. 8, lines 36-54 and Figs. 17A and 17B).

Regarding claim 2, Hirakata **teaches** driving a liquid crystal panel wherein the pixel block is positioned at a boundary portion between column drivers (col. 16, lines 54-59).

At to claim 3, Hirakata **teaches** driving a liquid crystal panel wherein the pixel block includes at least two data lines to which a data is applied form the same column diver (col. 16,lines 45-53).

Relative to claims 4 and 15, Hirakata **teaches** driving a liquid crystal panel wherein all the pixels within the liquid crystal panel responds to the data signals having a polarity inverted every frame (col. 3, lines 22-25).

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirakata as applied to claims 5 and 16 respectively in item 3 hereinabove, and further in view of Morita (USP 6,628,274).

Regarding claims 6 ands 17, Hirakata **does not teach** a liquid crystal panel comprising line-inversion control means for controlling the first signal supplying means to apply the data signals having the same polarity to the adjacent pixels in the gate line direction; and dot-inversion control means for controlling the second signal supplying means to apply the data signals having a polarity contrary to the pixels at the left and right sides thereof.

Hirakata teaches a liquid crystal display device with no flicker and with a bright display by using a frame inversion driving technique.

Morita **teaches** a display driving device for driving liquid crystal by applying a voltage to the liquid crystal based on gray-scale data representative of a display; Morita further **teaches** a liquid crystal panel comprising line-inversion control means for controlling the first signal supplying means to apply the data signals having the same polarity to the adjacent pixels in the gate line direction; and dot-inversion control means for controlling the second signal supplying means to apply the data signals having a polarity contrary to the pixels at the left and right sides thereof (col. 7, lines 28-49).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Hirakata the feature as taught by Morita in order to optimize the drive device output.

6. Claims 10, 12, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirakata as applied to claims 2 and 11 respectively in item 3 hereinabove, and further in view of

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Jeong et al. (USP 6,271,816).

Regarding claims 10 and 13, Hirakata **does not teach** a method wherein data lines within a least one first plurality of consecutively arranged data lines are connected to adjacent column drivers.

Hirakata teaches a liquid crystal display device with no flicker and with a bright display by using a frame inversion driving technique.

Jeong **teaches** a power saving circuit and method for driving an active matrix display (col. 3, lines 62-67 and col. 4, lines 1-7); Jeong et al. further **teaches teach** a method wherein data lines within a least one first plurality of consecutively arranged data lines are connected to adjacent column drivers (col. 2, lines 60-67; col. 5, lines 10-23 and col. 6, lines 49-62).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Hirakata the feature as taught by Jeong et al. in order to provide the means to significantly reduce the power needed by the column drive circuit to drive voltages of alternating polarity onto the column electrodes , in this way significant power is saved in both the pixel inversion and the row inversion schemes (Jeong et al. col. 3, lines 66-67 and col. 4, lines 1-3).

Relative to claims 12 and 14, Jeong et al. further **teaches** the method step of providing a plurality of column drivers for applying the video signal, wherein each column driver is connected to a plurality of consecutively arranged data lines (col. 4, lines 65-67; col. 5, lines 1-9 and Fig. 1A).

*Allowable Subject Matter*

7. Claims 7-9 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Regarding claims 7 and 18, the major difference between the teachings of the prior art of record (USP 6,496,172, Hirakata; USP 6,628,274, Morita and USP 6,271,816, Jeong et al.) and that of the instant invention is that said prior art of record **does not teach** an apparatus for driving a liquid crystal panel wherein the first and second signal supplying means comprises at least two signal inverters for responding to control signals applied from the line inversion control means and the dot-inversion control means to invert phases of input data signals.

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No. 6,559,822 Okuzono

U. S. Patent No. 6,400,350 Nishimura et al.

U. S. Patent No. 6,327,008 Fujiyoshi

*Responses*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E Kovalick whose telephone number is 703 306-3020. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703 305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 306-0377.

  
Vincent E. Kovalick  
January 28, 2004



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